



STATE PROCUREMENT OFFICE
EMERGENCY PROCUREMENT

14 MAY 23 A10:42

ADMINISTRATION
STATE PROCUREMENT OFFICE
STATE OF HAWAII

TO: Chief Procurement Officer

FROM: Department of Transportation/Highways Division
Name of Requesting Department

Pursuant to HRS § 103D-307 and HAR chapter 3-122, Subchapter 10, the Department requests approval for the following:

1. Date or period of Emergency: 4/15/2014	2. After-the-Fact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	--

3. Describe in detail the emergency situation that created a threat to life, public health, welfare or safety.
During the removal of rocks, vegetation and loose material on the cliff next to Kuamoo Road (just above the Wailua River State Park) on the Island of Kauai, several large and potentially unstable features were discovered. AECOM prepared a quick analysis of the situation (see attached report). DOT has decided to do immediate mitigation measures in the area and has AECOM designing the mitigation that will be put out to bid soon.

4. Vendor/Contractor/Service Provider Name:
AECOM Technical Services

5. Amount of Request:
\$ 500,000

6. Describe in detail the emergency goods, services, or construction and explain why it is necessary.
DOT is currently monitoring the site, and if conditions worsen, DOT will close this section of the road. Closure to this part of the road would create a much longer detour on a narrow, winding road for access to the community above and would increase travel time for the response of emergency vehicles, as well. Design and permitting needed to start immediately so that a project can be competitively bid. If conditions worsen, the DOT will be performing the construction portion as a emergency procurement (seperate request if needed).

7. State the reason(s) the vendor/contractor/service provider was selected. Explain what competition, as is practicable, was conducted.
AECOM was on-site assisting with the inspection of the rock scaling operations at the site, and is very experienced in this type of design work.

8. Identify the primary responsible staff person(s) conducting and managing this procurement. (Appropriate delegated procurement authority and completion of mandatory training required.)

*Point of contact (Place asterisk after name of person to contact for additional information.)

<u>Name</u>	<u>Division/Agency</u>	<u>Phone Number</u>	<u>E-mail Address</u>
Jamie Ho	Highways/DOT	587-2185	jamie.ho@hawaii.gov

*All requirements/approvals and internal controls for this expenditure is the responsibility of the department.
I certify that the information provided is to the best of my knowledge, true and correct.*

Department Head Signature

5.20.14
Date

For Chief Procurement Officer Use Only

Chief Procurement Officer (CPO) Comments:

Request is disapproved as it does not meet the requirements for an emergency procurement, and is not an appropriate use of the emergency procurement provision. Emergency procurement is to address unanticipated serious situations that require immediate action by a government agency that may affect the health and safety of the general public. The services of designing a heavy duty double drapery system and applying for permits is not considered an appropriate response to an emergency situation. The immediate response to an emergency would have been to close the road or put up temporary barriers with netting at areas of concern, or even just close one lane of the road and restrict traffic with appropriate signage. As this is a procurement violation, department shall submit SPO-16 to the SPO. This request is disapproved. If there are any questions, please contact Kevin Takaesu at 586-0568, or kevin.s.takaesu@hawaii.gov.

☐ Approved

☒ Disapproved

☐ No Action Required

Chief Procurement Officer Signature

6/26/14
Date

**EMERGENCY INSPECTION REPORT
KUAMO'O HIGHWAY ROCK SCALING
LIHUE, KAUAI, HAWAII**

Dates of Inspection: *March 31, 2014 and April 15, 2014*

Owner: *State of Hawaii, Department of Highways, Kauai District*

Contractor: *Prometheus Construction, Inc.*

Technical Inspection: *AECOM Technical Services (AECOM)*

Inspector: *Ardalan R. Nikou, P.E.*

Yucheng Pan, Senior Geologist, Ph.D.

Brandon Weaver, P.E.

Subject: *Concerns regarding unstable geologic features*

General:

AECOM engineer, arrived at the project location just before 11:30 AM on March 31, 2014. A constant flow of traffic appeared to be passing along both lanes adjacent to the project site. In terms of the weather, it was sunny with scattered clouds. It appeared that a shower had already passed through the area during the prior night. The project site was composed of two separate stretches of highway flanked on one side (Lihue side) by steep cliffs topped with heavy vegetation and trees and on the other side by open land which appeared to be situated at a much lower elevation than top of the highway pavement elevation.

The contractor had already rock scaled the majority of this first stretch of the cliff face that hovers alongside the highway clearing the vegetation and rocks. During the process of rock scaling at night, the technical site inspector and senior geologist at AECOM, Dr. Yucheng Pan, noticed and identified some geologic conditions along the cliff face that had become apparent to be imminent and potentially hazardous to the public health and safety. His communication of these foregoing issues to the engineer has prompted this urgent site inspection and hazard evaluation.

Site Condition:

This report is in regards to the first stretch of the highway cliffs that rests alongside of Kuamo'o Highway. The night technical inspector from AECOM, Dr. Yucheng Pan, requested this inspection after noticing some large and potentially unstable features that were discovered during the night scaling. At the time of this inspection of Kuamo'o Highway cliffs, the first of the two cliff segments, had been already rock scaled removing the loose and unstable surface rocks from the steep cliff face with use of crowbars and bare hands. The debris produced during the night scaling was removed from the site.

It is also noteworthy to mention that the project area is generally rich with cultural history and Hawaiian mythology. Because the cliffs were cleared of debris and vegetation, it had become easier to notice and further identify the many different features of geologic formation that presently exist along these cliffs. The followings are our observations which were also discussed with representatives from Bow CM and DOT District office at location.

Observations and Discussions:

The following observations are in relation to the first stretch of the highway cliffs of the two segments slated for rock scaling.

1. Near currently marked station 00+300 and about three quarter of the way up along the mauka direction, rock scaling has exposed a relatively steep and solid plane (see Photo 1 through Photo 3). Above the steep plane, the overburden is composed of crumbling rocks and soil which appears to be typical of this cliff formation and the result of exposure to the natural elements and continual weathering. A tension crack has already opened up at the very top of the cliff (above and along the back side of the overburden) near the tree line. The concern is with heavy rain and a frequently occurring vibration generated by the vehicles traveling on the highway below that could potentially release the top overburden down onto the highway. There is also a second major feature in this area, another tension crack which has opened up wide, but is currently filled with soft soil and other debris. The concern here is again penetration of rain water through the debris into the space within the crack creating large hydrostatic forces which could potentially cause a massive rock slide.
2. Near the current station marked 00+550, we noted a similar condition as Item 1 above, but in a more severe state. See Photo 4 below. Again, we noted a very steep plane made up of a relatively smooth and hard rock outcrop supporting an overburden of soils and rocks with a tension crack opened up near the tree line. During rock scaling work at night, rock scalers reported feeling vibrations every time someone farther away tried to release surface rocks with a crowbar. In addition, a tension crack along the side of the cliff has opened up several inches, and a massive wedge shaped feature with little support along the bottom of the wedge composed of highly fractured and flaky rock features is clearly exposed to view. This geologic wedge shape element has a somewhat heavy upper part making it prone to overtopping. Also see Photo 5 below.
3. The typical condition of the cliff face along this stretch of the highway reflects a flaky rock formation, easily loosened up rock pieces, overhanging features, and presence of cavities and fractured outcrops. We understand that further mitigation efforts will be beyond the rock scaling scope of work that was recently completed.

Mitigation Options and Recommendations:

Mitigation methods for addressing the entire cliff face adjacent to the highway, a distance of about 600 linear feet, would include:

- 1) A permanent engineered rockfall mitigation drapery system with a heavy duty double mesh (i.e. ringnet mesh and Tecco mesh system) supported by ground anchors at the top of the cliff with a construction cost of about \$1,755,000 and a construction time of 4 months (addressing only the two sites mentioned above using the same methodology would cost about \$831,000, and a construction time of about 3 months)

- 2) Installation of an anchored mesh system using closely spaced rock anchors placed within the area of a high strength mesh system for an estimated construction cost of \$3,086,000 and a construction time of about 10 months (addressing only the two sites mentioned above using the same methodology would cost about \$1,193,000, and a construction time of about 5 months)
- 3) Cutting and excavating the cliff face back to where stable materials are encountered and slopes of the cliff are gentler (not recommended due to traffic control and cultural sensitivity of the area).
- 4) Realigning of the highway away from the cliff face (not recommended at this time due to extreme cultural sensitivity of area, potentially high cost of construction, and an extended construction time).

Considering the construction costs, ease of implementation, and a shorter installation time to address this urgent safety condition, we would like to recommend installation of a heavy duty double drapery system along the entire length of the above mentioned segment (600 linear feet) for an estimated construction cost of about \$1,755,000 and a construction time of 4 months.

Prepared by:



Ardalan R. Nikou, P.E., R.M.E.
Sr. Civil Engineer
Special Civil Engineering Department

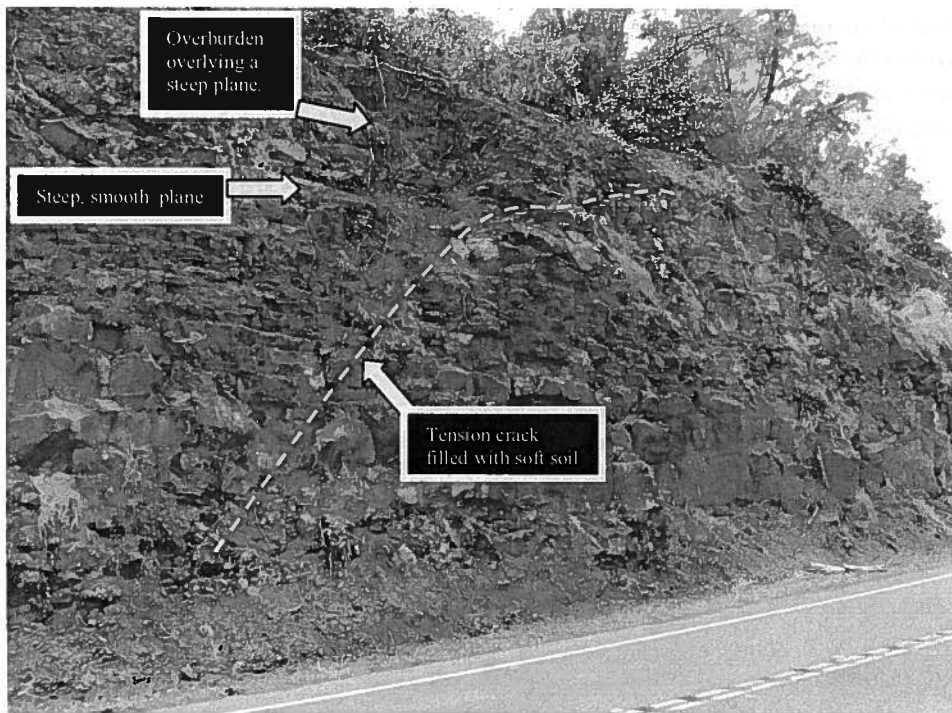


Photo 1. Note presence of a relatively steep plane and the overlying overburden.



Photo 2. Close up view of steep and smooth plane (yellow arrow), softer overburden above (blue arrow), and a soil filled tension crack (red arrows).



Photo 3. Another view of unstable features of the cliff and its proximity to the traffic.

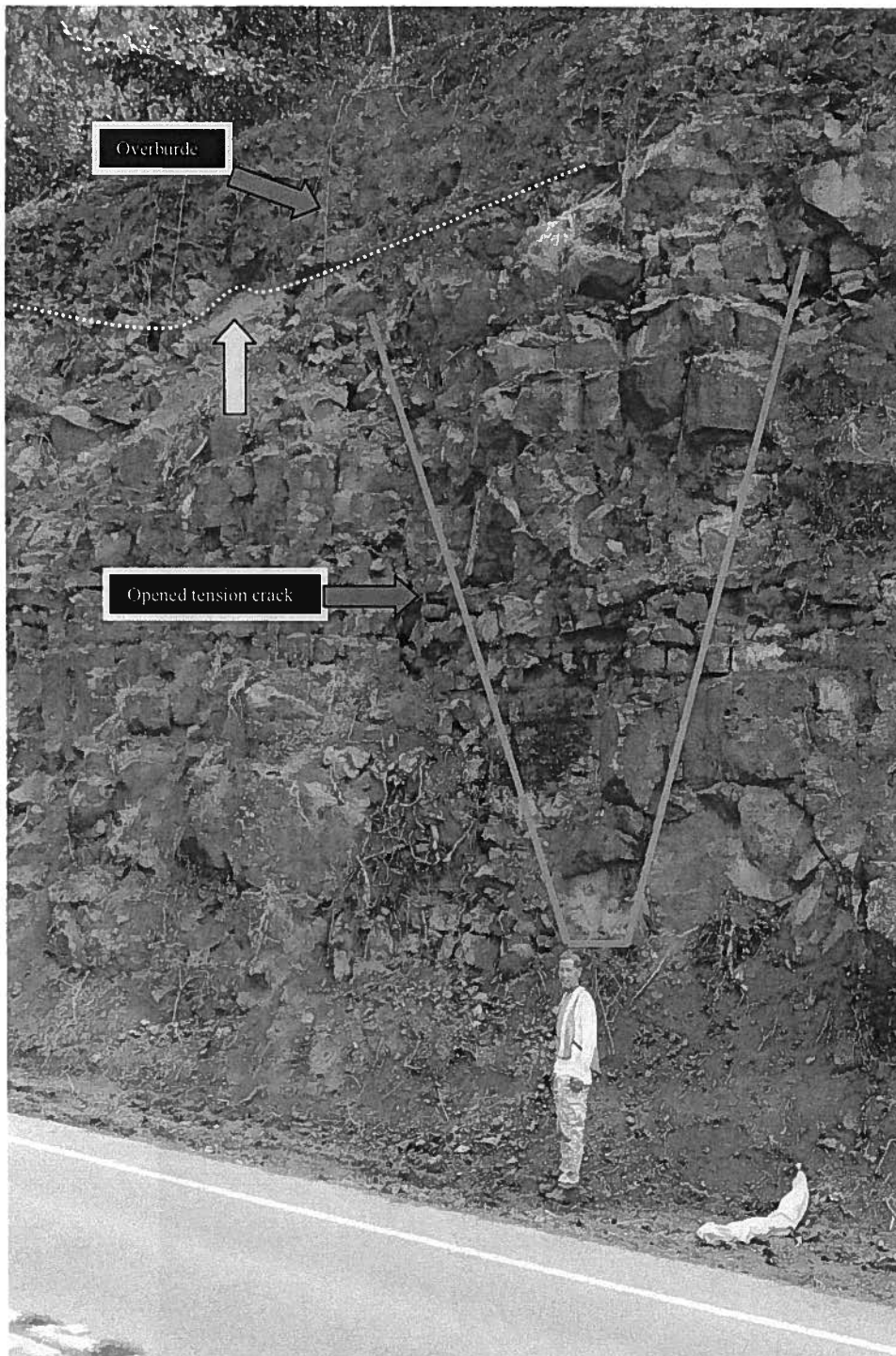


Photo 4. Note the very steep plane (yellow arrow), the overlying overburden (blue arrow), opened tension crack (red arrow), and a massive wedge with little bottom support (solid blue lines).



Photo 5. Another view of the cliff face at station 00+550. Note the overburden material (blue arrow); the steep plane not in view), tension crack (red arrows), and the massive wedge feature with little bottom support (green arrow).

Preliminary Cost Estimates

Preliminary Cost Estimates						
Project:		Kuamo'o Rockfall Mitigation		Mitigation: Drapped Mesh		
Location:		State of Hawaii DOT, Kauai District		Date (Rev 01): 4/15/2014		
Wailua, Kauai, Hawaii						
Item	Description	Quantity		Engineer's Estimate		
		Unit	Qty	\$/U	Total	
	Mobilization/ Demobilization (not to exceed 10% of construction)	LS	1		50,000	\$50,000
	Install Public Protection Measures and Fencing (as Required)	LS	1		20,000	\$20,000
	Install Double Drapped Mesh System (600' L x 55' H)	SF	33000		42	\$1,386,000
	Traffic Control	LS	1		100,000	\$100,000
	Cultural Monitoring	LS	1		25,000	\$25,000
	Subtotal					\$1,581,000
	Contingencies (@ 5%)	5%				\$79,050
	Subtotal					\$1,660,050
	Hawaii Tax (@ 4.16%)	4.16%				\$69,058
	Subtotal					\$1,729,108
	Bonding (@ 1.5%)	1.5%				\$25,937
	Total Estimated Construction Cost:					\$1,755,045

EP14029K

Preliminary Cost Estimates						
Project: Kuamo'o Rockfall Mitigation		Mitigation: Drapped Mesh Partial				
Location: State of Hawaii DOT, Kauai District		Date: 4/15/2014				
Wailua, Kauai, Hawaii						
Item	Description	Quantity		Engineer's Estimate		
		Unit	Qty	\$/U	Total	
	Mobilization/ Demobilization (not to exceed 10% of construction)	LS	1	50,000	\$50,000	
	Install Public Protection Measures and Fencing (as Required)	LS	1	20,000	\$20,000	
	Install Double Drapped Mesh System (100' x 55' & 100' x 53')	SF	10800	50	\$540,000	
	Traffic Control	LS	1	80,000	\$80,000	
	Cultural Monitoring	LS	1	25,000	\$25,000	
	Subtotal				\$715,000	
	Contingencies (@ 10%)	10%			\$71,500	
	Subtotal				\$786,500	
	Hawaii Tax (@ 4.16%)	4.16%			\$32,718	
	Subtotal				\$819,218	
	Bonding (@ 1.5%)	1.5%			\$12,288	
	Total Estimated Construction Cost:				\$831,506	

EP14.029K

Preliminary Cost Estimates

Preliminary Cost Estimates						
Project:		Mitigation: Anchored Mesh System				
Location:		Date: 4/15/2014				
Kuamo'o Rockfall Mitigation						
State of Hawaii DOT, Kauai District						
Wailua, Kauai, Hawaii						
Item	Description	Quantity		Engineer's Estimate		
		Unit	Qty	\$/U	Total	
	Mobilization/ Demobilization (not to exceed 10% of construction)	LS	1	100,000		\$100,000
	Install Public Protection Measures and Fencing (as Required)	LS	1	40,000		\$40,000
	Install Double Drapped Mesh System (600' L x 55' H)	SF	33000	75		\$2,475,000
	Traffic Control	LS	1	140,000		\$140,000
	Cultural Monitoring	LS	1	25,000		\$25,000
	Subtotal					\$2,780,000
	Contingencies (@ 5%)	5%				\$139,000
	Subtotal					\$2,919,000
	Hawaii Tax (@ 4.16%)	4.16%				\$121,430
	Subtotal					\$3,040,430
	Bonding (@ 1.5%)	1.5%				\$45,606
	Total Estimated Construction Cost:					\$3,086,036

Preliminary Cost Estimates						
Project:		Mitigation: Anchored Mesh System				
Location:		Date: 4/15/2014				
Project:		Kuamo'o Rockfall Mitigation				
Location:		State of Hawaii DOT, Kauai District				
Location:		Wailua, Kauai, Hawaii				
Item	Description	Quantity		Engineer's Estimate		
		Unit	Qty	\$/U	Total	
	Mobilization/ Demobilization (not to exceed 10% of construction)	LS	1	100,000	\$100,000	
	Install Public Protection Measures and Fencing (as Required)	LS	1	40,000	\$40,000	
	Install Double Drapped Mesh System (600' L x 55' H)	SF	10800	75	\$810,000	
	Traffic Control	LS	1	100,000	\$100,000	
	Cultural Monitoring	LS	1	25,000	\$25,000	
	Subtotal				\$1,075,000	
	Contingencies (@ 5%)	5%			\$53,750	
	Subtotal				\$1,128,750	
	Hawaii Tax (@ 4.16%)	4.16%			\$46,956	
	Subtotal				\$1,175,706	
	Bonding (@ 1.5%)	1.5%			\$17,636	
	Total Estimated Construction Cost:				\$1,193,342	